

**PREPARED STATEMENT OF  
M. HOWARD MORSE<sup>1</sup>**

**BEFORE THE  
ANTITRUST MODERNIZATION COMMISSION  
HEARING ON ANTITRUST AND THE NEW ECONOMY**

**NOVEMBER 8, 2005  
WASHINGTON, D.C.**

I am honored to have been asked to appear before the Antitrust Modernization Commission to address the “New Economy” issues that the Commission is studying. Many of you on the Commission are well versed in these issues based on you own experiences. I will offer my perspective today based on my ten years at the Federal Trade Commission, where I spent much of my time enforcing the antitrust laws against transactions in high-tech industries, as well as my years in private practice representing companies in high-tech industries, particularly in the computer hardware and software and pharmaceutical, biotech and medical device industries.

My testimony is based in part on articles I have written in recent years, including an article entitled “The Limits of Innovation Markets” attached hereto as Appendix A.<sup>2</sup> I will highlight a couple of observations in that article that I hope will be of some value to the Commission during the course of your deliberations.

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<sup>1</sup> I am a Partner and Co-Chair of the Drinker Biddle & Reath LLP Antitrust Group. Before moving to private practice in 1998, I was Assistant Director of the Federal Trade Commission Bureau of Competition, and before that Deputy Assistant Director for Policy in the Bureau of Competition. I am currently a member of the American Bar Association Section of Antitrust Law Antitrust Modernization Task Force and a former chair of the Section’s Intellectual Property and Computer Industry Committees. I am also Vice Chair of the Intellectual Property Owners Association Antitrust and Competition Law Committee. The views I express herein are solely my own and do not necessarily reflect the views of my law firm, any client of the firm, or any other organization.

<sup>2</sup> H. Morse, “The Limits of Innovation Markets,” ABA Antitrust and Intellectual Property (2001). *See also* H. Morse, “Product Market Definition in the Pharmaceutical Industry,” 71 Antitrust L.J. 633 (2004); H. Morse “Standard Setting and Antitrust: The Intersection Between IP Rights and the Antitrust Laws,” IP Litigator (May/June 2003); H. Morse “Cross-Licensing and Patent Pools, Legal Framework and Practical Issues,” ABA Antitrust and Intellectual Property (2002); H. Morse “Antitrust Issues in High-Tech Industries,” *The Antitrust Review of the Americas* (2001).

## I. General Issues Raised by the AMC Regarding Antitrust and Dynamic Industries<sup>3</sup>

Antitrust law must focus on dynamic effects to be relevant in the 21st Century. Historically, antitrust has focused principally on price and output effects in markets for goods and services, based upon an examination of historic market shares. Greater attention is needed to innovation, including an update of the government's *Horizontal Merger Guidelines*, which today largely ignores innovation. Guidance is also sorely needed from the government on issues at the intersection of antitrust and intellectual property, such as standard setting, patent pooling, and unilateral refusals to license, which were addressed at the joint Department of Justice-Federal Trade Commission 2002 Hearings on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy.

Some have gone further and have argued that antitrust analysis too often views markets as static snapshots rather than dynamic progressions, and that traditional market structure analysis yields unreliable results and enforcement challenges to efficient conduct where market power is quickly eroded.<sup>4</sup> I do not go nearly so far. Rather, I suggest that focusing on innovation may result in enforcement in cases that traditional analysis may have ignored, while allowing some conduct that might be challenged without due consideration of dynamic effects. Emphasizing innovation in the analysis, however, will focus enforcement where it is most important.

No one suggests that antitrust enforcers should not continue to condemn naked price fixing. Price is certainly relevant even in high-tech industries. Indeed, only a few weeks ago, Samsung Electronics, a Korean manufacturer of dynamic random access memory (DRAM), and its U.S. subsidiary, agreed to plead guilty and pay a \$300 million fine for participating in an international conspiracy to fix prices, the second largest criminal antitrust fine in U.S. history. Another Korean manufacturer, Hynix, and a German company, Infineon Technologies, each earlier pled guilty and together agreed to pay \$245 million in criminal fines.

There is no doubt, however, that antitrust law has traditionally focused on historical market shares, exemplified by cases like *Alcoa*<sup>5</sup> – which famously opined that a 90 percent share “is enough to constitute a monopoly; it is doubtful whether sixty or sixty four percent would be

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<sup>3</sup> The AMC has posed three interrelated general questions that I address in this section: (1) Does antitrust doctrine focus on static analysis, and does this affect its application to dynamic industries? (2) What features, if any, of dynamic, innovation-driven industries pose distinctive problems for antitrust analysis, and what impact, if any, should those features have on the application of antitrust analysis to these industries? (3) Are different standards or benchmarks for market definition or market power appropriate when addressing dynamic, innovation-driven industries, for example, to reflect the fact that firms in such industries may depend on the opportunity to set prices above marginal costs to earn returns? Or, are existing antitrust principles sufficiently flexible to accommodate the facts relevant to dynamic industries?

<sup>4</sup> See FTC, *Competition Policy in the New High-Tech, Global Marketplace* (1996), citing T. Jorde & D. Teece, Rule of Reason Analysis of Horizontal Agreements: Agreements Designed to Advance Innovation and Commercialize Technology, 61 Antitrust L.J. 579, 600 (1993) and Testimony of David J. Teece and Thomas M. Jorde.

<sup>5</sup> *United States v. Aluminum Co. of America*, 148 F.2d 416, 424 (2d Cir. 1945).

enough; and certainly thirty-three percent is not” – and *Philadelphia National Bank*<sup>6</sup> – which established a presumption of illegality when a “merger produces a firm controlling an undue percentage share of the relevant market.”

At the same time, *Alcoa* itself recognized the importance of competition in fostering innovation. Judge Learned Hand wrote quite eloquently, “[p]ossession of unchallenged economic power deadens initiative, discourages thrift and depresses energy; ... immunity from competition is a narcotic, and rivalry is a stimulant, to industrial progress.”<sup>7</sup> Focusing antitrust on the effect of competition on innovation is not entirely new.

*Philadelphia National Bank* itself held that the presumption can be overcome by evidence showing that the merger is not likely to have anticompetitive effects. And the Court’s *General Dynamics*<sup>8</sup> decision clearly establishes that market shares are only “relevant as a prediction of future competitive strength.” Notwithstanding a statistical showing based on historic market shares, further examination of companies’ “future ability to compete” and the “probable future” of the market is appropriate. The Court, as we know, determined in that case that the coal reserves of the merging parties was more indicative of their ability to compete for future supply contracts than historic market shares based on sales.

When I was at the FTC, we found the traditional static focus inadequate. We were faced with numerous cases in which parties argued, based on *General Dynamics*, that current market shares overstated the competitive significance of the merging parties. We realized that there were other cases in which market shares understated the competitive significance of merging firms, so-called reverse-*General Dynamics* cases, a subject to which I will return in addressing the AMC’s specific questions.<sup>9</sup>

It is worth noting also that regardless of market share, monopolies will not be condemned under U.S. antitrust law without exclusionary conduct. U.S. law makes “monopolization” illegal in contrast to some foreign laws that attack “abuse of dominance.” We have long recognized the need to encourage firms to build a “better mousetrap” – or today perhaps a better “mouse”, electronic or recombinant. The successful competitor, having been urged to compete, must not be turned on when he wins, whether he has succeeded through “superior, skill foresight and industry” or as a consequence of “historic accident,” absent exclusionary conduct.<sup>10</sup>

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<sup>6</sup> *United States v. Philadelphia National Bank*, 374 U.S. 321, 363 (1963).

<sup>7</sup> 148 F.2d at 427.

<sup>8</sup> *United States v. General Dynamics Corp.*, 415 U.S. 486, 498, 502, 510-11 (1974).

<sup>9</sup> See, e.g., *Societe Nationale Elf Aquitaine*, 112 F.T.C. 595 (1989) (alleging acquisition would lessen competition by “eliminating Elf as a perceived and potentially more significant competitive force than it is at present”).

<sup>10</sup> *United States v. Grinnell Corp.*, 384 U.S. 563 (1966); *United States v. Aluminum Co. of America*, 148 F.2d 416 (2d Cir. 1945).

It has been thirty years now, however, since the Supreme Court has decided a substantive merger case. Unfortunately, even the most recent Supreme Court merger cases take a skeptical view of efficiencies. *Brown Shoe*<sup>11</sup> suggests that in enacting the antitrust laws, Congress accepted that “occasional higher costs and prices might result from maintenance of fragmented industries and markets” and *FTC v. Procter & Gamble*<sup>12</sup> concluded that “[p]ossible economies cannot be used as a defense to illegality.”

While the *Merger Guidelines* were revised in 1997 to give greater credence to efficiencies – and I was part of the task force along with some on this Commission that drafted the revised efficiencies language in the *Guidelines* – we have seen few lower court cases in which efficiencies have played a major role, to advance the common law. The recent cases, *Staples*, *Heinz*, and *Cardinal Health*,<sup>13</sup> have found alleged efficiencies to be overstated or not merger specific. With respect to innovation efficiencies, the 1997 *Guidelines* revision took only a tiny step forward, noting that efficiencies relating to research and development are “potentially substantial but are generally less susceptible to verification and may be the result of anticompetitive output reductions.” In private practice, I have found such efficiencies often drive transactions in high-tech mergers, and while not always easily measured, should be given greater credence in merger policy. Further consideration should now be given to efficiencies that lead to more rapid or enhanced innovation, including development of new or improved products, given their potentially substantial impact.

It is quite telling that even the latest version of the *Merger Guidelines* focuses principally upon the likelihood that a merger will enable sellers “profitably to maintain prices above competitive levels.” The only mention of “innovation” in the entire *Merger Guidelines* is in a footnote, which states that sellers with market power “may also lessen competition on dimensions other than price, such as product quality, service or innovation.” The *Guidelines* provide a useful roadmap for assessing whether a proposed merger is likely to create, enhance or facilitate the exercise of market power, but do not provide any guidance in assessing the likelihood that a merger or acquisition will reduce innovation and thereby violate Section 7 of the Clayton Act. It is not enough to say that “price” means “quality adjusted price” taking into account product quality as well as service. It is far from clear, as discussed below, that the models espoused in the *Guidelines* to analyze price competition – including the “close substitutes” paradigm – translates to innovation competition. Further guidance is needed.

To the extent the FTC and DOJ have provided some guidance regarding the assessment of innovation issues in the agencies’ 1995 *Antitrust Guidelines for the Licensing of Intellectual Property* (the “*IP Guidelines*”) and in the agencies’ 2000 *Antitrust Guidelines for Collaborations Among Competitors* (the “*Joint Venture Guidelines*”), the guidance appears to be inconsistent. The *IP Guidelines* identify a “safety zone” for intellectual property licenses, advising that the

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<sup>11</sup> *Brown Shoe Co. v. United States*, 370 U.S. 294, 344 (1962).

<sup>12</sup> *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 580 (1967).

<sup>13</sup> *FTC v. Staples, Inc.*, 970 F. Supp. 1066, 1089 (D.D.C. 1997); *FTC v. H.J. Heinz Co.*, 246 F.3d 709, 722 (D.C. Cir. 2001); *FTC v. Cardinal Health*, 12 F. Supp. 2d 34 (D.D.C. 1998).

agencies will not generally challenge a restraint in an intellectual property license so long as there are *four or more independent entities* that are not parties to the license that compete in the respective technology or innovation market. The *Joint Venture Guidelines*, however, announce a safety zone where there are *three or more independently controlled research efforts* in addition to those of the collaboration with the required specialized assets or characteristics and the incentive to engage in R&D.<sup>14</sup> Reconciliation of the two safe harbors would avoid confusion.

Richard Gilbert and Carl Shapiro have both argued that “Innovation is King” for good reason.<sup>15</sup> Everyone should understand that small increases in productivity from innovation dwarf even significant reductions in static efficiency over time.<sup>16</sup> Thus in high-tech industries, at least, anticompetitive effects on innovation can have much greater impact than effects on price. This reality can be grasped by considering Moore’s law – which teaches that computer chip capabilities double every 18 months. Slowing the introduction of new and improved products in that environment can harm consumers far more than even a significant price increase.

I am certainly not suggesting that antitrust is or should be irrelevant in the new economy or that legislation is needed or would be advisable. Antitrust law is sufficiently flexible to take innovation concerns into account, and today’s theories, which may be replaced over time, need not be codified into the statute.

It has become routine in academic circles, at antitrust conferences, and in the press to ask whether the antitrust laws enacted over a hundred years ago are relevant to today’s high-tech markets. A New York Times editorial a few years ago, for example, asked “Can and should laws designed to manage the emergence of industrial and natural resource monopolies in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries be applied to the technology and intellectual property giants of the 21st century?”

Government antitrust enforcers have taken the position that the “core principles” of antitrust are as applicable to high industries as the First Amendment’s protection of freedom of speech is applicable to the Internet, even though the Internet was not envisioned when the Constitution was adopted. Some have gone further and have said “the new economy is fundamentally no different from the old when it comes to antitrust enforcement.”<sup>17</sup>

Others have argued that the antitrust enforcement should be limited for a variety of reasons. Some argue that dominant firms are inevitable in high-tech markets, forecasting the

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<sup>14</sup> DOJ/FTC, *Antitrust Guidelines for the Licensing of Intellectual Property* ¶ 4.3 (1995); DOJ/FTC, *Antitrust Guidelines for Collaborations Among Competitors* § 4.3 (2000).

<sup>15</sup> R. Gilbert and W. Tom, *Is Innovation King at the Antitrust Agencies?: The Intellectual Property Guidelines Five Years Later*, 69 Antitrust L.J. 43 (2001).

<sup>16</sup> See F.M. Scherer & D. Ross, *Industrial Market Structure and Economic Performance* 31, 613 (3d ed. 1990) (“an output handicap amounting to 10 percent of gross national product owing to static inefficiency is surmounted” in just 10.6 years if the growth rate can be increased from 3.0 to 4.0 percent).

<sup>17</sup> J. Klein, *Rethinking Antitrust Policies for the New Economy*, Before the Haas/Berkeley New Economy Forum (May 9, 2000).

future is difficult, market power is at most fleeting, and aggressive antitrust enforcement can inhibit innovation. Others suggest that high-tech products may be too sophisticated for regulators and the courts to understand. Yet others argue that the judicial system is too slow for litigation to have any impact on high-tech industries, other than to impose costs and distract management. The Wall Street Journal has even asked whether the antitrust laws are “anything but a license for Washington’s army of shakedown artists and policy tinkerers to slow the wheels of progress.”

In my view, the fundamental principles of antitrust should be applicable to the “New Economy,” but government enforcers and the courts should recognize that there are important characteristics of the high-tech sector that may impact the antitrust analysis. While everyone has their own list, I emphasize five key characteristics of high-tech industries. These phenomena, not all of which are present in every industry we think of as high-tech, are not new. But they are increasingly common in today’s so called “New Economy,” in which it has been said what we produce is increasingly a line of computer code or a gene sequence rather than an ingot of steel or a bushel of wheat.

The key characteristics of high-tech industries that I consider most important are:

1. *The rapid pace of innovation* – these are extremely dynamic industries, changing rapidly, with short product cycles. The pace of change often makes the future difficult to predict and tends to undermine or erode existing market power. Business officials, of course necessarily predict the future and spend large sums based on such predictions, and there are times the government can do so with reasonable confidence, based upon the projections of knowledgeable people in the industry. And market power may be durable even in high-tech industries, made more so by illegal exclusionary conduct.

2. *The critical importance of intellectual property* – the key assets of the “New Economy” are not bricks and mortar but ideas, protected by patent, copyright and other intellectual property.

We are fortunately past the time when the patent laws were viewed as rewarding an inventor with a “temporary monopoly” and “an exception to the general rule against monopolies.” Still, some regard the antitrust and patent laws as in conflict, at least when a patent gives a firm market power, and they argue there is a need to keep competition and intellectual property in balance. The better view, in my opinion, is that the laws are complementary, both aimed at encouraging innovation and competition.<sup>18</sup>

A fundamental premise of the 1995 DOJ/FTC *IP Guidelines* is that one should apply the same general antitrust principles to conduct involving intellectual property as to conduct involving other forms of property. While it is true that intellectual property is like other types of property, intellectual property generally knows no geographic borders and is easily copied. The

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<sup>18</sup> See *Atari Games Corp. v. Nintendo of America, Inc.*, 897 F.2d. 1572, 1576 (Fed. Cir. 1990) (“the aims and objectives of patent and antitrust law may seem, at first glance, wholly at odds. However, the two bodies of law are actually complementary, as both are aimed at encouraging innovation, industry and competition”).

*IP Guidelines* thus recognize that intellectual property “may in some cases be misappropriated more easily than other forms of property” and that “may justify the use of some restrictions that might be anticompetitive in other contexts.”<sup>19</sup> It is also true that the very essence of intellectual property is the right to exclude others. It would, therefore, be anomalous for antitrust law to impose an obligation to license on a firm that unilaterally – not through agreement with others – refuses to license intellectual property.<sup>20</sup> While the very fact that intellectual property can be easily copied may lead some to be attracted to forcing intellectual property owners to share their property, antitrust enforcers should be wary of short-term actions that may undermine the incentive to develop intellectual property. All patented drugs could be made generic tomorrow, but we would not expect to see many new drugs invented after such action.

3. *Large fixed costs, low marginal costs* – many high-tech industries, dependent on intellectual property, incur large upfront fixed costs, and have relatively small marginal costs of production. Development of new pharmaceuticals is notoriously expensive and risky, with many “dry wells” and a few “gushers,” as companies pour money into developing drugs that never succeed. New investment will not occur in such industries unless firms anticipate earning a competitive return in the long run.

Courts define monopoly power as “the power to control market prices or exclude competition”<sup>21</sup> and price-cost margins are sometimes said to provide insight into market power, making market definition unnecessary.<sup>22</sup> It is tempting to assert that prices above marginal cost are evidence of market power, but the evidence can be misleading. Professors Hovenkamp, Lemley and Janis offer an example of a copyright protected movie that costs \$150 million to produce, and can be duplicated onto videotape for \$2. At a price of \$2 per video, the movie would lose money and a firm that contemplates such a price would never have made it in the first place. A price of \$20 may vastly exceed marginal cost, but if it only allows a competitive return on the initial production cost, it would be meaningless to characterize it as reflective of market power. Professors Hovenkamp, Lemley and Janis conclude that “price-cost relationships on a particular patent or copyright do not provide useful evidence about market power.” They argue that the “technically correct” way to measure whether intellectual property produces returns above cost is to compare development costs with profits generated during a product’s marketable life.<sup>23</sup> In a high-risk enterprise, moreover, one must take into account failed products as well as those that are successful.

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<sup>19</sup> *IP Guidelines* ¶ 4.1.2.

<sup>20</sup> See also *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398 (2004).

<sup>21</sup> *U.S. v. E.I du Pont de Nemours & Co.*, 351 U.S. 377, 391 (1956).

<sup>22</sup> See, e.g., M. McFalls, *The Role and Assessment of Classical Market Power in Joint Venture Analysis*, 66 *Antitrust L.J.* 651, 659 (1998).

<sup>23</sup> H. Hovenkamp, M. Janis, M. Lemley, *IP and Antitrust* § 4.1c at 4-6-7 (2002).

4. *The presence of network effects* – high tech industries are often characterized by a “positive feedback loop” or “network effects,” generating increasing returns to scale. That is, the value of products or services often increases with the number of users. Network effects generate substantial efficiencies, but also may raise switching costs and raise barriers to entry to those without an established network or an ability to interface with one. That said, high-tech industries are, nonetheless, littered with once dominant firms whose products were leapfrogged into obsolescence, often as a result of disruptive paradigm shifts leveling the competitive playing field. The presence of network effects makes standard setting critically important in high tech industries, and suggests antitrust attention is warranted on abuses of the standard setting process that may create or entrench market power.

5. *First mover advantage* – in part because of intellectual property protection and network effects, as well as steep learning curves and economies of scale, there is often a substantial advantage to being the first in a high-tech industry to develop and introduce a new product or the first to gain a significant market presence, motivating firms to race to be the first to market. This characteristic means that a merger that leaves at least two firms pursuing R&D may not be of concern as the remaining firms are likely to race vigorously to be the first to market.

## II. Specific Questions Posed by the Commission

### **1. Should there be a presumption of market power in tying cases when there is a patent or copyright? What significance should be attached to the existence of a patent or copyright in assessing market power in tying cases and in other contexts?**

Since the AMC posed this question, the Supreme Court decided to review *Illinois Tool Works Inc. v. Independent Ink, Inc.*, 396 F.3d 1342 (Fed. Cir. 2005), to address the question “whether, in an action under Section 1 of the Sherman Act, 15 U.S.C. § 1, alleging that the defendant engaged in unlawful tying by conditioning a patent license on the licensee’s purchase of a non-patented good, the plaintiff must prove as part of its affirmative case that the defendant possessed market power in the relevant market for the tying product, or market power instead is presumed based solely on the existence of the patent on the tying product.”

Briefs have been filed in that case by a large number of amici supporting the position that there should be no presumption of market power, including the DOJ and FTC, the ABA, AIPLA, IPO, intellectual property associations in Chicago, New York, Houston, and DC, the Washington Legal Foundation, the MPAA, and Verizon. Briefs supporting a presumption were filed by a number of State Attorneys General, the American Antitrust Institute, AARP, the National Association of Theatre Owners and Video Software Dealers Association, professors Barry Nallebuff, Ian Ayres and Lawrence Sullivan, and professor F.M. Scherer. Oral argument is set for November 29.

Rather than repeat the arguments in the briefs before the Supreme Court, I note only that in addition to asking whether there should be a presumption, one might ask what it should take to overcome any presumption that is adopted. The Federal Circuit in the case under review, held



that “[t]he presumption can only be rebutted by expert testimony or other credible economic evidence of the cross-elasticity of demand, the area of effective competition, or other evidence of lack of market power.” Logically, the presence of good substitutes should at least shift the burden to the antitrust plaintiff to prove that there is market power.

**2. In what circumstances, if any, should the two-year time horizon used in the *Horizontal Merger Guidelines* to assess the timeliness of entry be adjusted? For example, should the time period be lengthened to include newly developed products when the introduction of those products is likely to erode market power? Should it matter if the newly developed products will not erode market power within two years? Is there a length of time for which the possession of market power should not be viewed as raising antitrust concerns?**

Entry is considered timely under the *Merger Guidelines* only if significant market impact can be achieved within two years of initial planning. The Guidelines reason that a merger is not likely to create or enhance market power or to facilitate its exercise if entry is so easy that it would deter or counteract competitive anticompetitive effects.

The two year standard is necessarily arbitrary. Equally arbitrary, of course, is the 5% “small but significant and nontransitory” price increase used to define markets. The *Guidelines* explicitly recognize that standard may vary depending on “the nature of the industry.” Indeed, the “small but significant and non-transitory” increase in price is employed solely as a methodological tool for the analysis of mergers. It is not a tolerance level for price increases.

Similarly, while less explicit, the *Guidelines* provide that the government “generally” will consider timely only entry alternatives that can be achieved within two years. They provide explicitly that that the period may be extended in a durable goods market where buyers may make investments to extend an existing product’s useful life.

The two-year entry standard should not be understood to be a tolerance level for anticompetitive effects. Where there is evidence that anticompetitive effects will occur despite quicker entry, the two year standard should be adjusted. Similarly, where later entry will deter anticompetitive effects, it should be considered timely. This may well be the case where customers can threaten to backwards integrate, though it may take them more than two years to do so, after which they would be captive and lost to merchant suppliers. Similarly, the prospect of the introduction of newly developed products after two years may inhibit anticompetitive effects of a proposed merger, particularly where customers may be upset by the merged firm’s short-run opportunistic behavior and may be more likely to switch to the new product when it is available. Simply because new entry is expected to take place after two years does not mean it can be ignored, any more than likely entry by one of the merging parties should be ignored because it is expected to happen in more than two years.

**3. Should antitrust law be concerned with “innovation markets”? If so, how should antitrust enforcers analyze innovation markets? How often are “innovation markets” analyzed in antitrust enforcement?**

Antitrust law should be concerned with innovation, and the “innovation market” concept is valuable insofar as it draws attention to the importance of competition in fostering innovation. Allegations of lessening of competition in innovation markets, however, should be grounded in sound economic theory.

When the government has alleged innovation markets in challenging mergers, it has identified three distinct competitive concerns: (1) the effect of the merger on competition in post-innovation goods markets, (2) the impact of the transaction on the pace of research and development, leading to better or cheaper products sooner, and (3) the impact of the transaction on the diversity of research and development tracks.

I want to focus attention on a couple of specific issues related to innovation markets.

**Applicability to Mergers to Monopoly.** Debate continues as to whether there is a correlation between concentration and innovation, but it is increasingly accepted that a firm’s size and position within a market affects its incentives to innovate. Firms in concentrated markets that do not have the scale to support R&D efforts or to capture the value of innovation may not engage in R&D. At the same time, a monopolist may have less incentive than a new entrant to engage in R&D that may lead to a substitute for an existing product or that may lower the cost of producing an existing product. That is because such innovations may cannibalize the monopolist’s supra-competitive profits and make such investments obsolete. Monopolists may well pursue incremental innovations to existing products and processes, quickly copy innovations introduced by smaller rivals, or engage in other defensive R&D. But they are less likely to pursue “disruptive technologies” or embrace innovations that threaten their dominance. Empirical studies document that “leap frog” or “paradigm-shifting” innovations are most often created by niche firms and new entrants.<sup>24</sup> Mergers of the only two firms in a market pursuing R&D would appear to raise serious antitrust concerns.

In *United States v. Compuware Corp.*, DOJ filed suit to block a software acquisition by an “overwhelmingly dominant” firm with an alleged 80% share. DOJ alleged that the acquisition would “eliminate Compuware’s potentially most threatening competitor and lead to “less innovation in product development.” Blocking such an acquisition is consistent with concern that monopolists tend to focus on incremental innovation and are less likely to pursue disruptive technologies, while new entrants that do not have a vested interest in the current technology are more willing to venture in untested directions and fail or leap-frog the competition. Difficult issues arise, however, in dynamic markets, where the allegedly dominant

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<sup>24</sup> See, e.g., C. Christenson, *The Innovator’s Dilemma: When New Technologies Cause Great Firms to Fail* (1997); J. Utterbach, *Mastering the Dynamics of Innovation* (1994); K. Arrow, *Economic Welfare and the Allocation of Resources to Invention*, in *The Rate and Direction of Inventive Activity* (National Bureau of Economic Research 1962); F.M. Scherer & D. Ross, *Industrial Market Structure and Economic Performance* 630-660 (3d ed. 1990); W. Cohen & R. Levin, *Empirical Studies of Innovation and Market Structure*, in 2 *Handbook of Industrial Organization* 1059 (R. Schmalensee & R. Willig eds. 1989).

firm's share is smaller and there are multiple fringe firms with potentially disruptive technologies. On such facts, the acquisition by the leading firm of an entrant with promising new technology may well hasten the commercialization of the entrant's technology, while the presence of other potentially disruptive technologies will ensure that the market leader will not suppress or delay the introduction of the acquired technology.

**Need for Specialized Assets.** The *IP Guidelines* state that the government will “delineate an innovation market only when the capabilities to engage in the relevant research and development can be associated with specialized assets or characteristics of specific firms.” Such specialized assets most often include physical assets, experience, production capability, and intellectual property. Thus, while the next important software program may come from the proverbial lone inventor working in his garage and the next drug from a university scientist in her laboratory, the next jet fighter is almost certainly going to come from a defense contractor. It is notable that the government has alleged in some cases that proposed mergers would create a so-called “killer patent portfolio.”

According to the *IP Guidelines*, moreover, the government will not pursue an innovation market analysis unless it can reasonably identify the firms with the required capability and incentive to engage in R&D. It is not surprising that a large number of innovation market cases are in the pharmaceutical industry, where advanced R&D is conducted under a regulatory framework that requires disclosure of clinical trials. At earlier stages of R&D, not only is it difficult to identify competitors, but predicting success is likely to be highly uncertain.

**Distinguishing Innovation from Research and Development.** There is occasionally confusion between research and development and innovation and at times the terms are used interchangeably. In fact, R&D is an input into innovation. In fact, a merger that leads to a reduction in R&D – but no reduction in innovation – should be considered efficient.

**Coordinated Interaction is Highly Unlikely.** While collusion in R&D cannot be rejected out of hand in all circumstances, it seems unlikely, particularly in dynamic markets. Reaching terms of coordination on the direction or pace of R&D with its multiple dimensions seems difficult, and even more important, the incentive to cheat is high, given the rewards to successful innovation. The ability to cheat undetected is also high since innovation is often conducted in secret. This is especially true where there are substantial first-mover advantages to the first successful innovator.

When innovation markets were introduced, there was much debate about how one could measure market shares. Proposals ranged from R&D expenditures to numbers of patents issued. Where firms have comparable capabilities and incentives to pursue R&D, it was proposed that the government adopt a bid model and assign equal shares. That debate, however, was largely irrelevant, so long as the only cases being brought alleged a merger to monopoly.

**Clarification of Unilateral Theories Required.** Both the Department of Justice and Federal Trade Commission have alleged unilateral anticompetitive effects in innovation from mergers among two of four firms in a market. In *United States v. Halliburton Co.*, for instance, DOJ alleged that the merger of Halliburton and Dresser would combine two of the four

companies that were developing drilling tools for oil and natural gas projects and their merger would likely lead to “a slowdown in the pace of ... innovation.” DOJ there alleged “Halliburton and Dresser responded to each other’s innovation efforts, as well as to those of the two others,” “[t]hey approached R&D in significantly different ways,” and neither was a “maverick.” DOJ concluded that these facts supported a “significant anticompetitive problem” on a unilateral theory, that the merger “threatened to eliminate one of [the merging firms’] approaches, decreasing the chance of successful innovation,” and “the rate of innovation would likely be slower.”<sup>25</sup>

In a number of pharmaceutical mergers, the FTC similarly has alleged that mergers of two of four competitors developing various drugs could lead the combined firm to “unilaterally delay, terminate, or otherwise fail to develop” one of two competing drugs, “potentially reducing the number of drugs reaching the market.” In the pharmaceutical industry, at least, where there is often a substantial first mover advantage, the merged firm should be motivated to beat other firms developing products by pursuing R&D efforts efficiently. If the merged firm were to decide to drop one project because research dollars are better spent on other projects, that may well benefit consumers rather than cause consumer harm, even if the dropped project would have been pursued by the firm if they remained independent.

While a unilateral theory might be articulated where the merging firms control the most advanced R&D efforts and others are well behind, so that the merged firm may slow its efforts and still be first to market, other unilateral theories do not fit neatly into the *Merger Guidelines*’ close substitute model. Indeed, while the *Merger Guidelines* explain why mergers of firms with products that are close substitutes may lead to higher prices, absent repositioning, it is not at all clear that theory applies to innovation, where there may be greater concern about a merged firm dropping a promising, distinct research path than combining close research efforts.

The time is ripe for the DOJ and FTC to articulate theories of competitive harm to innovation and address effects on innovation in the *Merger Guidelines*.

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<sup>25</sup> *United States v. Halliburton Co.*, Civ. No. 98-2340 (D.D.C. complaint filed Sept. 29, 1998); C. Robinson, *Leap-Frog and Other Forms of Innovation*, Before the American Bar Association (June 10, 1999).